

SYNONYMY OF THE MEMBRACIDÆ OF FORMOSA

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The study of a large number of Membracidæ from Formosa (Taiwan) which have accumulated in the author's collection over a period of many years, and especially some excellent collections made by Mr. J. Linsley Gressitt in 1932 and 1934, has made it possible to recognize most of the species which have been described or recorded from that island and to add a considerable number of new records.

According to Mr. Gressitt, the fauna and flora of the island of Formosa show a closer relationship to the forms on the eastern continental land mass of Asia than to those of the Philippines and this fact is indicated by the geographical distribution of the Membracidæ. Only two of the Formosan species have been recorded from the Philippine Islands while seventeen are found in China and on the island of Hainan.

The synonymy of the Membracidæ of Formosa has been in much confusion due largely to the work of Kato. Kato's descriptions are very unsatisfactory. Most of his descriptions of Membracidæ have been published only in the Japanese language, and while we have secured what we believe to be creditable translations of these papers, they leave much to be desired. His figures are practically worthless. Most of them are photographs which are very successful in concealing all of the important specific and most of the generic characters. Nevertheless, a careful study of these descriptions and figures, and particularly the comparison of these with what we consider to be a good representative series of the insects of the island, make it quite evident that he has placed species in the wrong genera, has described as new some species which are already well known, and has erected genera which are synonyms of previously established genera with which he apparently was not familiar.

More material would of course be desirable, but since it is unlikely that we shall see additional collections from this region for a number of years, this list is presented in the belief that it

represents a fairly accurate synonymy of the Formosan forms to date. This list includes all of the species of Membracidae from Formosa which have been recorded in the literature of the family and all species from the island which we have observed in collections but which have not been previously recorded in publications. Most of these species we have seen; those which we have not seen are listed just as they were published.

Genus **Bulbauchenia** Schumacher

1. *Bulbauchenia tiawanensis* Schumacher
1915. *Bulbauchenia tiawanensis* Schumacher, Saut.
Form., 115.

Genus **Centrotoscelus** Funkhouser

1. *Centrotoscelus flava* Kato
1928. *Arisangargara flava* Kato, Insect World, XXXII:
30.
2. *Centrotoscelus gracilis* Kato
1928. *Arisangargara gracilis* Kato, Insect World,
XXXII: 27.
3. *Centrotoscelus koshunensis* Matsumura
1912. *Centrotus koshunensis* Matsumura, Cic. Jap., II:
19, 8.
1912. *Gargara variegatus* Matsumura, Cic. Jap., II:
21, 10.
1927. *Tricentrus koshunensis* Funkhouser, Cat. Memb.,
501.
1928. *Arisangargara matsumurai* Kato, Ins. World,
XXXII: 30.
1930. *Arisangargara montana* Kato, Zool. Soc. Jap.,
300.
4. *Centrotoscelus marginatus* Kato
1928. *Arisangargara marginata* Kato, Ins. World,
XXXII: 29.
5. *Centrotoscelus nigra* Kato
1928. *Arisangargara nigra* Kato, Ins. World, XXXII:
27.
6. *Centrotoscelus nigrifrons* Kato
1928. *Arisangargara nigrifrons* Kato, Ins. World,
XXXII: 29.

7. *Centrotoscelus nitida* Kato

1928. *Arisangargara nitida* Kato, Ins. World, XXXII: 28.

8. *Centrotoscelus shinchicuna* Kato

1928. *Gargara shinchicuna* Kato, Ins. World, XXXII: 22.

Genus **Evanchon** Goding1. *Evanchon variegatus* Funkhouser

1918. *Anchonoides variegatus* Funkhouser, Malayan Memb., 4, 8.

1927. *Maguva variegatus* Funkhouser, Cat. Memb., 440.

Genus **Gargara** Amyot and Serville1. *Gargara botanshana* Kato

1928. *Gargara botanshana* Kato, Ins. World, XXXII: 23.

2. *Gargara brunneidorsata* Funkhouser

1929. *Gargara brunneidorsata* Funkhouser, Phil. Journ. Sci., XL: 128.

1930. *Gargara dorsimaculata* Kato, Zool. Soc. Jap., 298.

3. *Gargara brunneifasciata* Funkhouser

1928. *Gargara brunneifasciata* Funkhouser, Ling. Sci. Journ., XVII: 204.

4. *Gargara castanea* Kato

1928. *Gargara castaneus* Kato, Ins. World, XXXII: 16.

5. *Gargara davidi* Fallou

1891. *Gargara davidi* Fallou, Rev. Ent., 354, 1.

6. *Gargara elegans* Kato

1928. *Gargara elegans* Kato, Ins. World, XXXII: 22.

7. *Gargara elongata* Kato

1928. *Gargara elongata* Kato, Ins. World, XXXII: 24.

8. *Gargara fumipennis* Kato

1930. *Gargara fumipennis* Kato, Zool. Soc. Jap., 299.

9. *Gargara hainanensis* Funkhouser

1937. *Gargara hainanensis* Funkhouser, Ling. Sci. Journ., XVI: 244.

10. *Gargara horishana* Matsumura

1912. *Centrotus horishanus* Matsumura, Cic. Jap., II: 25, 19.

1928. *Gargara horishana* Kato, Ins. World, XXXII: 25.
11. *Gargara hyalina* Kato
1930. *Gargara hyalina* Kato, Zool. Soc. Jap., II: 299.
12. *Gargara kawakamii* Matsumura
1912. *Centrotus kawakamii* Matsumura, Cic. Jap., II: 26, 20.
1927. *Gargara kawakamii* Funkhouser, Cat. Memb., 402.
13. *Gargara laticapitata* Kato
1928. *Gargara laticapitata* Kato, Ins. World, XXXII: 21.
14. *Gargara matsumurai* Kato
1930. *Gargara matsumurai* Kato, Zool. Soc. Jap., II: 298.
15. *Gargara nigromaculata* Funkhouser
1927. *Gargara nigromaculata* Funkhouser, Faun. Sumat., 10.
16. *Gargara nigronervosa* Kato
1928. *Gargara nigronervosa* Kato, Ins. World, XXXII: 18.
17. *Gargara nitidipennis* Funkhouser
1914. *Gargara nitidipennis* Funkhouser, Journ. Ent. and Zool., VI: 71.
18. *Gargara nodulata* Funkhouser
1942. *Gargara nodulata* Funkhouser, Journ. N. Y. Ent. Soc., L: 1, 63.
19. *Gargara nokozana* Kato
1928. *Gargara nokozana* Kato, Ins. World, XXXII: 21.
20. *Gargara picea* Kato
1928. *Gargara picea* Kato, Ins. World, XXXII: 30.
21. *Gargara piceola* Melichar
1903. *Gargara piceola* Melichar, Hom. Cey., 122, 1.
1928. *Gargara minuta* (preoccupied) Kato, Ins. World, XXXII: 19.
1928. *Gargara minuta pallida* Kato, Ins. World, XXXII: 19.
1928. *Gargara minuta lineata* Kato, Ins. World, XXXII: 20.
22. *Gargara sordida* Funkhouser

1918. *Gargara sordida* Funkhouser, Malayan Memb., 13, 26.
23. *Gargara taihokunis* Kato
1928. *Gargara taihokunis* Kato, Ins. World, XXXII: 17.
24. *Gargara takihashi* Kato
1940. *Gargara takihashi* Kato, Memb. East Asia, 17.
25. *Gargara tectiformis* Funkhouser
1938. *Gargara tectiforma* Funkhouser, Ling. Sci. Journ., XVII: 2, 203.
26. *Gargara zonata* Matsumura
1912. *Centrotus zonatus* Matsumura, Cic. Jap., II: 24, 16.
1927. *Gargara zonata* Funkhouser, Cat. Memb., 410.

Genus *Imporcitor* Distant

1. *Imporcitor laticornis* Kato
1928. *Imporcitor laticornis* Kato, Trans. Nat. Hist. Soc. Form., XIX: 541.

Genus *Kotogargara* Matsumura

1. *Kotogargara botelensis* Matsumura
1938. *Kotogargara botelensis* Matsumura, Ins. Mat., XII: 4, 153.

Genus *Leptobelus* Stal

1. *Leptobelus sauteri* Schumacher
1915. *Leptobelus sauteri* Schumacher, Saut. Form., 115.

Genus *Leptocentrus* Stal

1. *Leptocentrus albolineatus* Funkhouser
1937. *Leptocentrus albolineatus* Funkhouser, Ling. Sci. Journ., XVI: 2, 238.
2. *Leptocentrus formosanus* Kato
1928. *Leptocentrus formosanus* Kato, Trans. Nat. Hist. Soc. Form., XVIII: 32.
3. *Leptocentrus horizontalis* Kato
1940. *Leptocentrus horizontalis* Kato, Memb. East Asia 2.

Genus **Lobocentrus** Stal

1. *Lobocentrus zonatus* Stal
 1870. *Lobocentrus zonatus* Stal, Hem. Phil., 728, 1.
 1939. *Acanthophes zonatus* Goding, Old World Memb., 346.

Genus **Machærotypus** Uhler

1. *Machærotypus coreanus* Kato
 1933. *Machærotypus coreanus* Kato, Ill. Ins. Jap., Pl. 43, fig. 8.

Genus **Maurya** Distant

1. *Maurya nodosa* Funkhouser
 1940. *Maurya nodosa* Funkhouser, Manch. Memb., 146.
2. *Maurya paradoxus* Lethierry
 1876. *Centrotus paradoxus* Lethierry, Ann. Soc. Ent. Belg., XIX: 80.
 1904. *Tricentrus paradoxus* Melichar, Memb. Cere., 13.
3. *Maurya siberica* Lethierry
 1876. *Gargara siberica* Lethierry, Ann. Soc. Ent. Belg., XIX: 80.
 1906. *Tricentrus sibericus* Oshanin, Pal. Hem., 44, 164.
 1912. *Centrotus sibericus* Matsumura, Cic. Jap., II: 16, 2.
 1928. *Maurya sibericus* Kato, Ins. World, XXXII: 12.
 1933. *Machærotypus sibericus* Kato, Ill. Ins. Jap., Pl. 40, fig. 4.
 1934. *Xanthosticta siberica* Goding, Old World Memb., 475.

Genus **Melicharella** Goding

1. *Melicharella incultus* Melichar
 1903. *Machærotypus incultus* Melichar, Hom. Cey., 124, 1.
 1930. *Melicharella incultus* Goding, Journ. N. Y. Ent. Soc., XXXVIII: 40.
 1940. *Acentrotus incultus* Kato, Memb. East Asia, 151.

Genus **Pantaleon** Distant

1. *Pantaleon bufo* Kato
1928. *Eupantaleon bufo* Kato, Trans. Nat. Hid. Soc. Form., XVIII: 33.

Genus **Sipylus** Stal

1. *Sipylus albifasciatus* Kato
1928. *Sipylus albifasciatus* Kato, Ins. World, XXXII: 14.
2. *Sipylus guttulinervis* Matsumura
1912. *Centrotus guttulinervis* Matsumura, Cic. Jap., II: 25, 18.
1928. *Sipylus guttulinervis* Kato, Ins. World, XXXII: 12.
1934. *Gargara guttulinervis* Goding, Old World Memb., 472.
3. *Sipylus latifasciatus* Kato
1928. *Sipylus latifasciatus* Kato, Ins. World, XXXII: 14.
4. *Sipylus lineatus* Kato
1928. *Sipylus lineatus* Kato, Ins. World, XXXII: 13.
5. *Sipylus minutus* Kato
1928. *Sipylus minutus* Kato, Ins. World, XXXII: 14.
6. *Sipylus typicus* Kato
1930. *Formocentrus typicus* Kato, Zool. Soc. Jap., 284.

Genus **Tricentrus** Stal

1. *Tricentrus albipennis* Kato
1930. *Tricentrus albipennis* Kato, Zool. Soc. Jap., 287.
2. *Tricentrus allabens* Distant
1916. *Tricentrus allabens* Distant, Faun. Brit. Ind., App. 166, 3367.
3. *Tricentrus basalis* Walker
1851. *Centrotus basalis* Walker, List Hom. B. M., 626, 65.
1912. *Tricentrus kuyanianus* Matsumura, Cic. Jap., II: 19, 6.
1916. *Tricentrus basalis* Distant, Rhynch. Notes, 329.
1940. *Orthobelus flavipes* Kato, Memb. East Asia, 9.

4. *Tricentrus biformis* Kato
1930. *Tricentrus biformis* Kato, Zool. Soc. Jap., 288.
5. *Tricentrus castaneipes* Kato
1940. *Tricentrus castaneipes* Kato, Memb. East Asia,
15.
6. *Tricentrus fasciatus* Kato
1928. *Tricentrus fasciatus* Kato, Ins. World, XXXII:
5.
7. *Tricentrus fuscoapicalis* Kato
1928. *Tricentrus fuscoapicalis* Kato, Ins. World,
XXXII: 5.
8. *Tricentrus fuscolimbatus* Kato
1928. *Tricentrus fuscolimbatus* Kato, Ins. World,
XXXII: 8.
9. *Tricentrus gargariformis* Kato
1928. *Tricentrus gargariformis* Kato, Ins. World,
XXXII: 8.
10. *Tricentrus glochidionæ* Kato
1930. *Tricentrus glochidionæ* Kato, Zool. Soc. Jap., 286.
11. *Tricentrus gracilicornis* Kato
1928. *Tricentrus gracilicornis* Kato, Ins. World,
XXXII: 3.
12. *Tricentrus gracilis* Kato
1928. *Tricentrus gracilis* Kato, Trans. Nat. Hist. Soc.
Form., 540.
13. *Tricentrus hyalinipennis* Kato
1928. *Tricentrus hyalinipennis* Kato, Ins. World,
XXXII: 1.
14. *Tricentrus kotoinsulanus* Kato
1928. *Tricentrus kotoinsulanus* Kato, Ins. World,
XXXII: 7.
15. *Tricentrus minuticornis* Kato
1928. *Tricentrus minuticornis* Kato, Ins. World,
XXXII: 4.
16. *Tricentrus mushænsis* Kato
1928. *Tricentrus mushænsis* Kato, Ins. World, XXXII:
2.

17. *Tricentrus naifunpoensis* Kato
1930. *Tricentrus naifunpoensis* Kato, Zool. Soc. Jap.,
289.
18. *Tricentrus pallipes* Kato
1928. *Tricentrus pallipes* Kato, Ins. World, XXXII: 6.
19. *Tricentrus punctatus* Kato
1928. *Tricentrus punctatus* Kato, Ins. World, XXXII:
6.
20. *Tricentrus taipinensis* Kato
1928. *Tricentrus taipinensis* Kato, Ins. World,
XXXII: 3.
21. *Tricentrus takaoensis* Kato
1930. *Tricentrus takaoensis* Kato, Zool. Soc. Jap., 290.
22. *Tricentrus xiphistes* Kato
1928. *Tricentrus xiphistes* Kato, Ins. World, XXXII:
9.

Genus **Xanthosticta** Buckton

1. *Xanthosticta akonis* Matsumura
1912. *Centrotus akonis* Matsumura, Cic. Jap. II: 21, 10.
1928. *Tricentrus akonis* Kato, Ins. World, XXXII: 10.

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BOOK NOTICE

Shelter Trees in War and Peace. By Ephraim Porter Felt, D.Sc., New York, Orange Judd Publishing Company, Inc. 1943. 8 x 5¼ inches, 320 p., 53 figs. \$2.50.

Although this is not a book on entomology, it deserves notice here because entomologists are interested in trees and because it has been written by our well-known entomologist, Dr. E. P. Felt, at present Director and Chief Entomologist of the Bartlett Tree Research Laboratories, and author of "Our Shade Trees" and "Pruning Trees and Shrubs," as well as numerous entomological books and papers.

Dr. Felt's latest work of 18 chapters deals with trees and man, trees and nature, protection afforded by trees, shelter trees and economics, engineering and trees, tree parts, tree growth, shelter trees and war, effect of construction work on trees, tree troubles, the care and selection of trees and shade tree policy. In addition, it is illustrated by 53 good photographs.

This book, which is dedicated to the better use of trees, is concerned with the relation of trees to nearly every type of human activity and economy. Sound and thoughtful information is presented on such numerous topics as trees and their bearing upon health, roads, national defense, camps, public utilities, industrial plants, parks, housing projects, playgrounds, streets, etc. The importance of trees in protective concealment and the need for a stable tree policy are stressed. The extensive section dealing with the characteristics and suitabilities of certain species for various sections should be of interest to many individuals and agencies. This book should be read by those who take trees for granted. Most of us do not have a well-proportioned view of the significance of trees as a whole and this is what Dr. Felt gives us.—H. B. W.